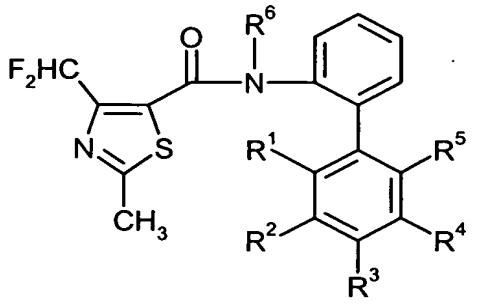
Claims

1. A thiazolylbiphenylamide of the formula (I)



(I)

in which

R^1, R^2, R^3, R^4 and R^5 independently of one another represent hydrogen, halogen, cyano, nitro, C_1-C_6-alkyl, C_2-C_6-alkenyl, C_1-C_4-alkoxy, C_1-C_4-alkylthio, C_1-C_4-alkylsulfonyl, C_3-C_6-cycloalkyl, or represent C_1-C_4-haloalkyl, C_1-C_4-haloalkoxy, C_1-C_4-haloalkylthio or C_1-C_4-haloalkylsulfonyl having in each case 1 to 5 halogen atoms,

R^1 and R^2 or R^2 and R^3 furthermore together represent optionally halogen- or C_1-C_6-alkyl-substituted alkenylene,

R^6 represents C_1-C_8-alkyl, C_1-C_6-alkylsulfinyl, C_1-C_6-alkylsulfonyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-cycloalkyl; C_1-C_6-haloalkyl, C_1-C_4-haloalkylsulfanyl, C_1-C_4-haloalkylsulfinyl, C_1-C_4-haloalkyl-sulfonyl, halo-C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; $-COR^7$, $-CONR^8R^9$ or $-CH_2NR^{10}R^{11}$,

R^7 represents hydrogen, C_1-C_8-alkyl, C_1-C_8-alkoxy, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-cycloalkyl; C_1-C_6-haloalkyl, C_1-C_6-haloalkoxy, halo-C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms, or 4-(difluoromethyl)-2-methyl-1,3-thiazol-2-yl,

R^8 and R^9 independently of one another represent hydrogen, C_1-C_8-alkyl, C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-cycloalkyl; C_1-C_8-haloalkyl, halo-C_1-C_4-alkoxy-C_1-C_4-alkyl, C_3-C_8-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^8 and R^9 furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1-C_4-alkyl and which has 5 to 8 ring atoms, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulfur and NR^{12},

R^{10} and R^{11} independently of one another represent hydrogen, C_1-C_8-alkyl, C_3-C_8-cycloalkyl; C_1-C_8-haloalkyl, C_3-C_8-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^{10} and R^{11} furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1-C_4-alkyl and which has 5 to 8 ring atoms, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulfur and NR^{12},

R^{12} represents hydrogen or C_1-C_6-alkyl.

2. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which

R^1, R^2, R^3, R^4 and R^5 independently of one another represent hydrogen, fluorine, chlorine, bromine, cyano, nitro, methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl, methoxy, ethoxy, methylthio, ethylthio, n- or isopropylthio, cyclopropyl, trifluoromethyl, trichloromethyl, trifluoroethyl, difluoromethoxy, trifluoromethoxy, difluorochloromethoxy, trifluoroethoxy, difluoromethylthio, difluoro-

chloromethylthio or trifluoromethylthio,

R^1 and R^2 or R^2 and R^3 furthermore together represent optionally fluorine-, chlorine-, bromine- or methyl-substituted butadienediyl,

R^6 represents C_1-C_6-alkyl, C_1-C_4-alkylsulfinyl, C_1-C_4-alkylsulfonyl, C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-cycloalkyl; C_1-C_4-haloalkyl, C_1-C_4-haloalkylsulfanyl, C_1-C_4-haloalkylsulfinyl, C_1-C_4-haloalkylsulfonyl, halo-C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms; $-COR^7$, $-CONR^8R^9$ or $-CH_2NR^{10}R^{11}$,

R^7 represents hydrogen, C_1-C_6-alkyl, C_1-C_4-alkoxy, C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-cycloalkyl; C_1-C_4-haloalkyl, C_1-C_4-haloalkoxy, halo-C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms or 4-(difluoromethyl)-2-methyl-1,3-thiazol-2-yl,

R^8 and R^9 independently of one another represent hydrogen, C_1-C_6-alkyl, C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-cycloalkyl; C_1-C_4-haloalkyl, halo-C_1-C_3-alkoxy-C_1-C_3-alkyl, C_3-C_6-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^8 and R^9 furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle which is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of halogen and C_1-C_4-alkyl and which has 5 to 8 ring atoms, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulfur and NR^{12},

R^{10} and R^{11} independently of one another represent hydrogen, C_1-C_6-alkyl, C_3-C_6-cycloalkyl; C_1-C_4-haloalkyl, C_3-C_6-halocycloalkyl having in each case 1 to 9 fluorine, chlorine and/or bromine atoms,

R^{10} and R^{11} furthermore together with the nitrogen atom to which they are attached preferably form a saturated heterocycle which is optionally mono- or polysubstituted by identical or different substituents from the group consisting of halogen and C_1-C_4-alkyl and which has 5 to 8 ring atoms, where the heterocycle may contain 1 or 2 further non-adjacent heteroatoms from the group consisting of oxygen, sulfur and NR^{12},

R^{12} represents hydrogen or C_1-C_4-alkyl.

3. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which

R^1, R^2, R^3, R^4 and R^5 independently of one another represent hydrogen, fluorine, chlorine, bromine, cyano, methyl, methoxy, methylthio, trifluoromethyl, difluoromethoxy, trifluoromethoxy, difluoromethylthio or trifluoromethylthio,

R^6 represents methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl, pentyl or hexyl, methylsulfinyl, ethylsulfinyl, n- or isopropylsulfinyl, n-, iso-, sec- or tert-butylsulfinyl, methylsulfonyl, ethylsulfonyl, n- or isopropylsulfonyl, n-, iso-, sec- or tert-butylsulfonyl, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, cyclopropyl, cyclopentyl, cyclohexyl, trifluoromethyl, trichloromethyl, trifluoroethyl, difluoromethylsulfanyl, difluorochloromethylsulfanyl, trifluoromethylsulfanyl, trifluoromethylsulfinyl, trifluoromethylsulfonyl, trifluoromethoxymethyl; $-COR^7$, $-CONR^8R^9$ or $-CH_2NR^{10}R^{11}$,

R^7 represents hydrogen, methyl, ethyl, n- or isopropyl, tert-butyl, methoxy, ethoxy, tert-butoxy, cyclopropyl; trifluoromethyl, trifluoromethoxy or 4-(difluoromethyl)-2-methyl-1,3-thiazol-2-yl,

R^8 and R^9 independently of one another represent hydrogen, methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl, methoxymethyl, methoxy-

ethyl, ethoxymethyl, ethoxyethyl, cyclopropyl, cyclopentyl, cyclohexyl; trifluoromethyl, trichloromethyl, trifluoroethyl, trifluoromethoxymethyl,

R^8 and R^9 furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle from the group consisting of morpholine, thiomorpholine and piperazine, which heterocycle is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine and methyl, where the piperazine may be substituted on the second nitrogen atom by R^{12},

R^{10} and R^{11} independently of one another represent hydrogen, methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl, methoxymethyl, methoxyethyl, ethoxymethyl, ethoxyethyl, cyclopropyl, cyclopentyl, cyclohexyl; trifluoromethyl, trichloromethyl, trifluoroethyl, trifluoromethoxymethyl,

R^{10} and R^{11} furthermore together with the nitrogen atom to which they are attached form a saturated heterocycle from the group consisting of morpholine, thiomorpholine and piperazine, which heterocycle is optionally mono- to tetrasubstituted by identical or different substituents from the group consisting of fluorine, chlorine, bromine and methyl, where the piperazine may be substituted on the second nitrogen atom by R^{12},

R^{12} represents hydrogen, methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl.

4. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which in each case four of the radicals R^1, R^2, R^3, R^4 and R^5 represent hydrogen.

5. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which

R^1, R^2, R^4 and R^5 each represent hydrogen and
R^3 is as defined in any of claims 1 to 3.

6. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^2, R^4 and R^5 each represent hydrogen and
R^1 and R^3 independently of one another are as defined in any of claims 1 to 3.

7. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^1, R^4 and R^5 each represent hydrogen and
R^2 and R^3 independently of one another are as defined in any of claims 1 to 3.

8. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^1, R^3 and R^5 each represent hydrogen and
R^2 and R^4 independently of one another are as defined in any of claims 1 to 3.

9. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^6 represents $-COR^7$ and R^7 represents 4-(difluoromethyl)-2-methyl-1,3-thiazol-2-yl.

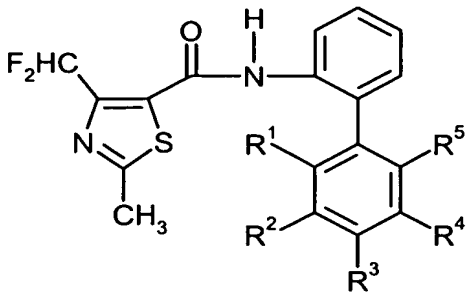
10. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^6 represents $-COR^7$ and R^7 represents methyl, ethyl, cyclopropyl or trifluoromethyl, in particular methyl.

11. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^6 represents -CHO.

12. The thiazolylbiphenylamide of the formula (I) as claimed in claim 1 in which
R^6 represents methyl, ethyl, n- or isopropyl, n-, iso-, sec- or tert-butyl, methylsulfinyl, methylsulfonyl, methoxymethyl, ethoxyethyl, cyclopropyl, cyclopentyl, cyclohexyl, trifluoromethyl, trichloromethyl, trifluoromethylsulfanyl, trifluoromethylsulfinyl, trifluoromethylsulfonyl, trifluoromethoxymethyl, in particular methyl, isopropyl or cyclopropyl.

13. A process for preparing thiazolylbiphenylamides of the formula (I) as claimed in claim 1, characterized in that

(A) thiazolylbiphenylamides of the formula (II)



(II)

in which

R^1, R^2, R^3, R^4 and R^5 are as defined in claim 1

are reacted with a halide of the formula (III)

R^6—X (III)

in which

R^6 is as defined in claim 1 and

X represents chlorine, bromine or iodine

in the presence of a base and in the presence of a diluent.

14. A composition for controlling unwanted microorganisms, characterized in that it comprises at least one thiazolylbiphenylamide of the formula (I) as claimed in claim 1, in addition to extenders and/or surfactants.

15. The use of thiazolylbiphenylamides of the formula (I) as claimed in claim 1 for controlling unwanted microorganisms.

16. A method of controlling unwanted microorganisms, characterized in that thiazolylbiphenylamides of the formula (I) according to claim 1 are applied to

the microorganisms and/or their habitat.

17. A process for preparing compositions for controlling unwanted microorganisms, characterized in that thiazolylbiphenylamide of the formula (I) as claimed in claim 1 is mixed with extenders and/or surfactants.